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10/598,043	06/25/2007	Paolo Dario	5413KST-3	9483
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SHERIDAN ROSS PC 1560 BROADWAY SUITE 1200 DENVER, CO 80202			EXAMINER SMITH, PHILIP ROBERT	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/598,043

**Applicant(s)**

DARIO ET AL.

**Examiner**

PHILIP SMITH

**Art Unit**

3779

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-13 and 15-20 is/are rejected.
- 7) ☒ Claim(s) 7, 8 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 8/16/06 12/11/09 10/14/10
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

**Claim Rejections - 35 USC § 102**

- [01] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

- [02] Claims 1-6,9-13,16,18,20 rejected under 35 U.S.C. 102(a) as being anticipated by Kim (2004/0030454).
- [03] With regard to claim 1: Kim discloses a teleoperated endoscopic capsule for diagnostic and therapeutic purposes inside a human body cavity, characterised in that it comprises
- [03a] a body with a plurality of locomotion modules ("wings 220" [0053]) placed on its surface, suitable for moving said body in said cavity,
- [03b] a source of energy inside said body ("power device" [0035]),

[03c] a microcontroller ("controlling unit 420" [0035]) in said body to actuate said locomotion modules on the basis of commands teletransmitted by an operator,

[0045] At that time, the observer controls the movement of the micro capsule robot by stopping or delaying in case that the micro capsule robot reaches to principal observation points in the organs. Then, as shown in FIG. 6, a control signal of stop or delay is transmitted through an outside apparatus, and the signal is transmitted to the controlling unit 420 through the radio transmission/receive device 421. Then, the controlling unit 420 controls body movement control unit 200 to unfold the wings 220 to stop or to delay the movement of the robot in the organs.

[03d] a video camera ("camera device 111" [0035]) for capturing images, controlled by said microcontroller,

[03e] a transceiver system ("radio transmission/receive device 421" [0035]) for receiving commands teletransmitted by the operator and for transmitting the images captured via said video camera.

[04] With regard to claim 2: each of said locomotion modules comprises a leg ("wings 220" as noted above) suitable for being brought into contact with the wall of said cavity for transmitting the locomotion force and moving the points of contact with it to produce locomotion, said leg having at least two degrees of freedom, and means for actuating the movements of said leg controlled by said microcontroller ("unfolded from an outer circumferential surface of the body unit 100 by the operation of the linear driving device 210 to contact with an inner wall of an organ in order to control, i.e. to delay or stop a movement of the body unit 100" [0033]).

[05] With regard to claim 3: said body has a front end and a rear end spaced longitudinally and said leg has at least one degree of freedom active in the longitudinal direction of said body controlled by said actuator means.

- [06] With regard to claim 4: said leg has at least one passive degree of freedom to adapt the force of contact against said wall to the deformability of the same wall.
- [07] With regard to claim 5: said leg is a substantially rod-shaped element in two portions ("wing 220 comprises a lower plate 222" and "an upper plate 223" [0054]), end-to-end connected by a knee portion with increased flexibility ("fixing axis 231" [0048]), and comprises grasping means for increasing adherence of the contact against said wall ("suction portion 230" [0048]).
- [08] With regard to claim 6: said leg is a substantially rod-shaped element with a plurality of sections with increased flexibility along it, and comprises grasping means to increase adherence of the contact with the wall (as noted above).
- [09] With regard to claim 9: said knee portions with increased flexibility are made by material removal.
- [10] With regard to claim 10: said knee portions with increased flexibility comprise end-of-stroke stops to limit the angular movement in both directions.
- [11] With regard to claim 11: said legs are made in shape memory alloy (SMA) ([0039]).
- [12] With regard to claim 12: said actuator means comprise a pair of wires in shape memory alloy (SMA) connected to said leg and acting in opposition to move it angularly around an axis perpendicular to the longitudinal direction of said body, said wires being selectively fed with an electrical current under the control of said microcontroller (see Figure 3, [0039], [0042]).
- [13] With regard to claim 13: each locomotion module comprises a support housed longitudinally on said body, at one end of said support a pulley ("first rotary shaft 211" [0038]) being provided, with axis perpendicular to the longitudinal direction of said body, said leg extending radially from said pulley, said SMA wires being connected to said pulley at diametrically opposite parts thereof and to electrical contacts provided at the opposite end of said support (see Figure 17).

- [14] With regard to claim 16: said actuator means are suitable for transmitting angular movements of said leg between a rest position, wherein it is placed longitudinally along said body, and a position of maximum radial extension.
- [15] With regard to claim 17: said rest position said leg is housed in said support.
- [16] With regard to claim 18: the position of maximum radial extension of said leg is at 120.degree. in relation to said rest position.
- [17] With regard to claim 20: As noted above, Kim discloses a system for diagnostic and therapeutic endoscopy inside a human body cavity, characterised in that it comprises an endoscopic capsule according to claim 1 and an external control interface for transmitting to said capsule the commands for its locomotion in said cavity and for the reception and processing of the obtained data.

**Claim Rejections - 35 USC § 103**

- [18] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- [19] Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (2004/0030454).
- [20] Kim discloses four radially spaced locomotion modules. Kim does not disclose six or more locomotion modules. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide additional modules. It is within the skill level of a person of ordinary skill to simply multiply the essential elements of a device.

**Additional Claim Rejections - 35 USC § 103**

- [21] Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (2004/0030454) in view of Imran (2002/0198470).
- [22] Kim does not disclose a biodegradable coating. Imran discloses "[a] dissolvable encasing" that "may surround the capsule body 111. The encasing may be formed of a suitable dissolvable material such as, for example, a soluble gelatin or enteric coating that is dissolvable in the body fluids contained in the stomach or intestinal tract" ([0083]). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide an enteric coating. A skilled artisan would be motivated to do so in order to facilitate swallowing of the device.

**Allowable Subject Matter**

- [23] Claims 7-8, 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Conclusion**

- [24] The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
- [24a] The following disclose capsule endoscopes with mobilization or demobilization appendages: Lewkowicz (2003/0018280), Gilad (2006/0167339), Meron (2003/0216622) (2002/0042562), Refael (2003/0208107), Kim (2003/0092964) (2002/0173700) (6,824,508)
- [24b] Grundfest (5,662,587) and Ng (6,162,171) disclose mobilization appendages for a conventional endoscope.
- [25] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip R Smith whose telephone number is (571) 272 6087 and whose email address is

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philip.smith@uspto.gov. The examiner can normally be reached between 9:00am and 5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Sweet, can be reached on (571) 272 4761. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Philip R Smith/  
Primary Examiner, Art Unit 3779